

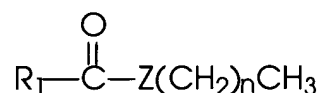
REMARKS

Claims 1 to 19 and 44 to 67 are pending in the application. The Examiner has subjected the claims to a restriction requirement and claims 10 to 19 and 44 to 66 have been withdrawn from consideration. Claims 1 and 2 stand rejected under 35 U.S.C. §102(b) as being anticipated by Takeya et al. (Japanese Patent Publication JP 01245084 A2 as shown in Chemical Abstracts CA 112) or Aida et al. (Japanese Patent Publication JP 63316852 A2 as shown in Chemical Abstracts CA 111). Claims 1 to 4, 8, and 9 stand rejected under 35 U.S.C. §102(b) as being anticipated by Fujihira et al. ("Dye Sensitization of Tin Dioxide and Gold Electrodes Chemically Modified with Langmuir-Blodgett Films of Surfactant Derivatives of Rhodamine B and Ruthenium Bipyridine Ru(II)(bpy)₃²⁺ Complexes," *Thin Solid Films* (1985), 132, 221-8 as shown in Chemical Abstracts CA 105). Claims 1, 2, 8, and 9 stand rejected under 35 U.S.C. §102(b) as being anticipated by Johansson et al. ("Electronic Energy Transfer in Anisotropic Systems. 1. Octadecylrhodamine B in Vesicles," *J. Phys. Chem.* (1987), 91(11), 3020-3 as shown in Chemical Abstracts CA 106). Claims 1 and 2 stand rejected under 35 U.S.C. §102(b) as being anticipated by West et al. ("Selective Ionophore-Based Optical Sensors for Ammonia Measurement in Air," *Anal. Chem.* (1992), 64(5), 533-40 as shown in Chemical Abstracts CA 116). Claims 1 to 7 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Aida et al. Claims 1, 3, and 4 have been objected to for informalities.

Applicants initially point out that while new claim 67, submitted in the previous Amendment, has been acknowledged as

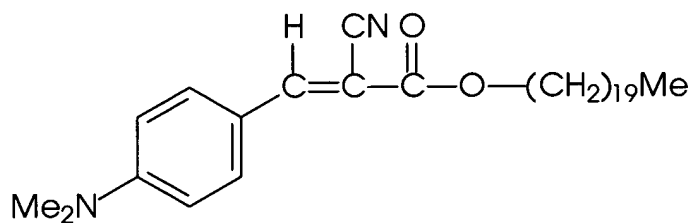
pending on page 1, paragraph 4 of this Office Action, this claim has been indicated neither as allowed nor as rejected, and has not been mentioned in the Office Action. Applicants respectfully request consideration of this claim.

Applicants respectfully traverse the rejections of the claims under §102. The present invention is directed to a compound having the formula:

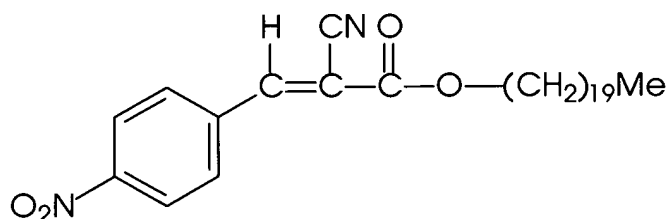


wherein R₁, Z and the carbonyl can be comprised by a common ring, wherein R₁ comprises a chromophore that absorbs light from the visible wavelength range; wherein Z is an atom or group of atoms, said atom or group of atoms including at least one atom selected from the group consisting of C, O, N and S; and wherein n is an integer that is at least 39. Advantages of the present invention include substantial hydrophobic character, solubility in materials used as carriers for phase change inks, and other advantages as set forth in the specification and illustrated in the examples.

The Examiner has rejected claims 1 and 2 under §102(b) as being anticipated by Takeya et al. Takeya et al. is directed to a nonlinear optical material suited for use in optical switches, memories, and bistable devices that consists of a carbonic acid ester represented by RA(CH:CH)_nCH:C(CN)CO₂L wherein R is R₁R₂N, R₃O, R₄S, CN, CONR₅R₆, NR₇COR₈, or R₉, wherein R₁₋₉ are C₁₋₈ hydrocarbyl or H, A is C₅₋₁₄ aryl, L is C₁₂₋₂₅ straight-chain hydrocarbyl, and n is 0, 1, or 2. Some specific examples of these materials are

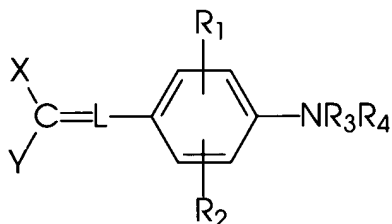


and



The Examiner has rejected claims 1 and 2 under §102(b) as being anticipated by Aida et al. Aida et al. discloses a color photographic film possessing:

(1) a layer containing a yellow dye of the formula

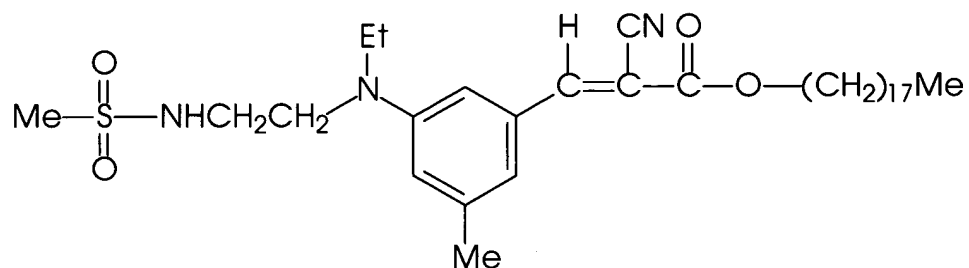


wherein X and Y are CN, CO_2H , alkylcarbonyl, arylcarbonyl, alkoxycarbonyl, aryloxycarbonyl, carbamoyl, or sulfamoyl, and wherein X and Y may join to form a ring, R_1 and R_2 are H, halo, alkyl, alkoxy, OH, CO_2H , amino, carbamoyl, sulfamoyl, NO_2 , or alkoxycarbonyl, R_3 and R_4 are hydrogen, alkyl, alkenyl, aryl, or acyl, and wherein R_3 and R_4 may join to form a ring, L is methine; excluded are compounds in which X is CN, Y is $(\text{R}_5\text{SO}_2\text{NH})\text{C}_{56}\text{H}_4\text{CO}$, R_5 is C_{1-3} alkyl; the reference further states that R_1 is

H, R₂ is 2-substituted H or C₁₋₃ alkyl, R₃ and R₄ are C₁₋₃ alkyl with ≥ 1 having a terminal R₆OCO or R₆CO₂, wherein R₆ is C₁₋₃ alkyl or C₁₋₃ fluoroalkyl, and L is unsubstituted methine;

(2) ≥ 1 tabular Ag halide emulsion layers with Ag halide grains of thickness 0-3 μm , diameter of projected circular area $\geq 0.3 \mu\text{m}$, and aspect ratio ≥ 4 , occupying ≥ 70 percent of the total projected area of the Ag halide grains in the layer, and

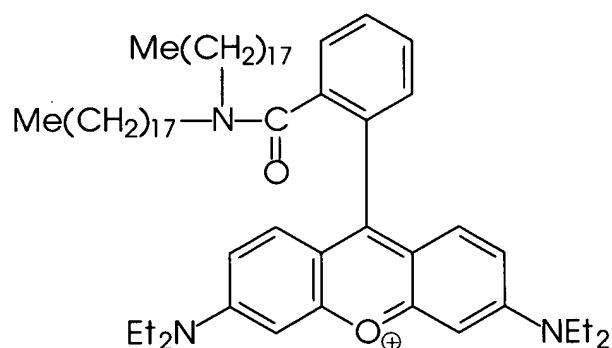
(3) Ag halide grains where projected diameters are 0.2 to 0.7 μm and aspect ratio ≤ 2 making up ≤ 30 percent in number of the Ag halide grains of $\geq 0.15 \mu\text{m}$. A specific example of a material disclosed is of the formula



The Examiner is of the position that these two references anticipate the instant invention as recited in claims 1 and 2, noting that the compounds in these references have $n=17$ and R as a chromophore.

To facilitate prosecution, Applicants have amended claim 1 to recite that n is at least 39. Support for this amendment can be found in the application as filed at, for example, page 4, lines 4 to 9, and page 4, line 28 to page 5, line 5. Applicants believe that this amendment clearly distinguishes the compounds of the instant invention from those in the cited references.

The Examiner has rejected claims 1 to 4, 8, and 9 under §102(b) as being anticipated by Fujihira et al. Fujihira et al. discloses the synthesis of three kinds of surfactant derivatives of Rhodamine B and $\text{Ru}(\text{bpy})_3^{2+}$ complexes with 2 long alkyl chains. Surfaces of optically transparent SnO_2 electrodes and of optically semitransparent vapor-deposited Au film electrodes on quartz were coated with (1) a Langmuir-Blodgett film of the dye surfactant itself, (2) a mixed film with arachidic acid or its Cd or Ca salt, or (3) a dye surfactant LB film with a spacer of arachidic acid or its salt. The thickness of the spacer was controlled by the number of arachidic monolayers. The photoelectrochemical characteristics and some physicochemical properties such as UV-visible absorption and emission spectra of the LB-film-modified electrodes were discussed mainly in terms of the distance between the electrode surface and the excited dye moiety. One specific example of a material disclosed is of the formula

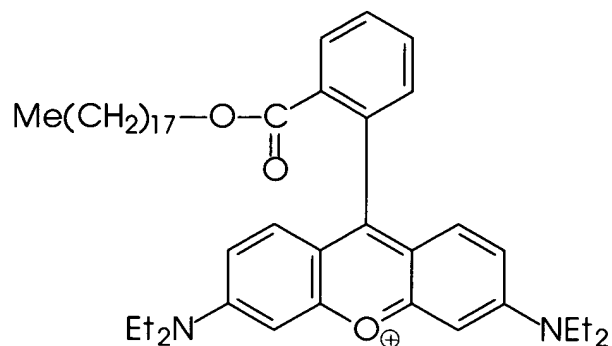


The Examiner is of the position that this reference anticipates the instant invention as recited in claims 1 to 4, 8, and 9, noting that the compound in this reference has $n=17$ and R as a chromophore.

To facilitate prosecution, Applicants have amended claim 1 to recite that n is at least 39. Support for this amendment can be found in the application as filed at, for example, page 4, lines 4 to 9, and page 4, line 28 to page 5, line 5. Applicants believe that this amendment clearly distinguishes the compounds of the instant invention from those in the cited references.

The Examiner has rejected claims 1, 2, 8, and 9 under §102(b) as being anticipated by Johansson et al. Johansson et al. discloses the study of electronic energy transfer between octadecylrhodamine B solubilized in unilamellar vesicles of 1,2-dioleoyl-sn-glycero-3-phosphocholine. The quantum yield of fluorescence and the steady state fluorescence anisotropy were measured at various temperatures and concentrations of octadecylrhodamine B. Rhodamine B chloride was used as a reference in the measurements of the quantum yield. For this purpose it was necessary to determine the molar absorptivity and the fluorescence lifetime at different temperatures. The fluorescence decay of rhodamine B in ethanol was monoexponential with a lifetime that continuously decreased from 3.6 ns at 265K to 1.9 ns at 32K. The radiative lifetime was 4.2 ns. From linear dichroism measurements the orientation of octadecylrhodamine B in the vesicles was determined. No energy transfer could be detected when the mole fraction of octadecylrhodamine B in the vesicles was $\sim 10^{-4}$. Donor-donor and donor-acceptor (traps) transfer occurred at concentrations $\sim 10^{-4}$ and $\sim 10^{-3}$, respectively. The latter was most probably because of the formation of ground state dimers of octadecylrhodamine B. The rate of energy transfer in anisotropic systems

can be sensitive to and enhanced by the rotational motions of the interacting fluorophores. An example of a material disclosed is of the formula

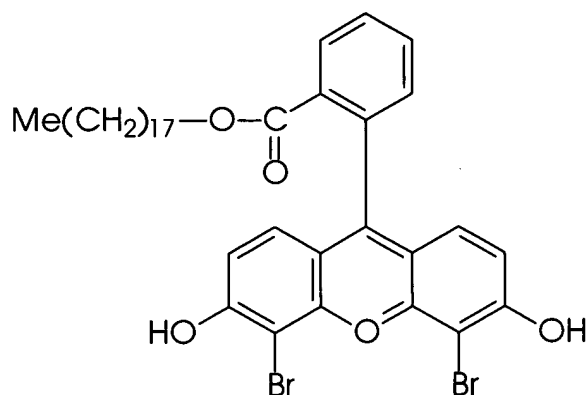


The Examiner is of the position that this reference anticipates the instant invention as recited in claims 1, 2, 8, and 9, noting that the compound in this reference has n=17 and R as a chromophore.

Applicants point out that the teachings of this reference are clearly distinguishable from the compound of claim 9 in that the Johansson compound has a -C(=O)-O-(CH₂)₁₇Me group, whereas the compound of claim 9 has a -C(=O)-NH-(CH₂)_nMe group. In addition, with respect to claims 1, 2, and 8, to facilitate prosecution, Applicants have amended claim 1 to recite that n is at least 39. Support for this amendment can be found in the application as filed at, for example, page 4, lines 4 to 9, and page 4, line 28 to page 5, line 5. Applicants believe that this amendment clearly distinguishes the compounds of the instant invention from those in the cited references.

The Examiner has rejected claims 1 and 2 under §102(b) as being anticipated by West et al. West et al. discloses optical sensors (optrodes) based on the incorporation of NH₄ ion-selective ionophores

and H ion-selective chromoionophores in plasticized poly(vinyl chloride) (PVC) membranes. The sensors are applied to the measurement of NH_3 in air. The dynamic response characteristics and selectivities for NH_3 with respect to other normally occurring gases under varying relative humidity were studied for several membrane formations. No significant interference occurred from relevant levels of SO_2 , NO_2 , or CO_2 , but a trade-off between selectivity over other amines vs. insensitivity to changes in relative humidity was found. An optrode formulated with the ionophore valinomycin, which formed a comparatively strong complex with NH_4^+ ion, preferred NH_3 over the alkylamines tested, but was affected significantly by humidity changes. An optrode based on the ionophore ETH 157, which formed a weaker NH_4 complex, showed no humidity effect but responded approximately equally to low levels of EtNH_2 , MeNH_2 , and NH_3 . In the experimental configuration described, the latter optrode had a range of 0.002 to 100 parts per million and response times varying from 230 seconds at 0.05 parts per million (by volume) to 15 seconds at 100 parts per million. A proposed optimization of the optical geometry promised to yield sub-part per billion detection limits and faster response times in future studies. There was no deterioration in response after 4 months in laboratory air. One example of a material disclosed was of the formula



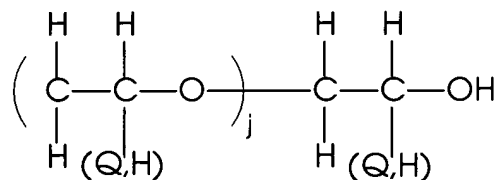
The Examiner is of the position that this reference anticipates the instant invention as recited in claims 1 and 2, noting that the compound in this reference has $n=17$ and R as a chromophore.

To facilitate prosecution, Applicants have amended claim 1 to recite that n is at least 39. Support for this amendment can be found in the application as filed at, for example, page 4, lines 4 to 9, and page 4, line 28 to page 5, line 5. Applicants believe that this amendment clearly distinguishes the compounds of the instant invention from those in the cited references.

The Examiner has rejected claims 1 to 7 under §103 as being unpatentable over Aida et al., stating that Aida et al. disclosed generically the claimed compounds and a species that anticipated the broad claims of the instant invention, that Aida et al. disclosed all the features of the claims except the particular species differ from the specific dependent claims 6 and 7 in that the Z moiety of the structure 123764-97-6 is O and one of R_7 or R_8 is sulfonamide substituted, while in instant claims 6 and 7 the Z moiety is N and one of R_7 or R_8 is hydroxy substituted. The Examiner has further stated that Aida et al. taught

generically that Z is N and one of R₇ or R₈ is hydroxy substituted as an optional choice for such class of compounds, and that one having ordinary skill in the art would expect any compounds generically disclosed by Aida et al. to be operable for the same utility as Aida et al. and the picking and choosing of some among many is prima facie obvious.

Applicants disagree with this position. While Aida et al. discloses a wide variety of substituents on the compounds therein, the Examiner has not indicated any teaching or suggestion in this reference that would lead one of ordinary skill in the art to conclude that it would be particularly advantageous to include in the molecule both a long chain alkyl group connected to a carbonyl group through a -NH- group and a substituted nitrogen atom wherein at least one of the substituents is of the formula



Compounds according to this formula are particularly suitable for use in phase change inks. Applicants point out that these arguments apply to new claims 68 and 69, which are similar in scope to original claims 6 and 7 except that they are in independent form; claims 6 and 7 depend from claim 1, and are clearly distinguishable from the teachings of Aida et al. for the reasons set forth hereinabove with respect to the rejection of claims 1 and 2 under §102(b) as being anticipated by Aida et al.

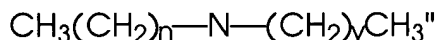
Applicants further direct the Examiner's attention to new claims 70 and 71, which recite that *j* is at least 1. Support for these claims can be found in the application as filed at, for example, page 8, lines 1 and 2. Applicants additionally direct the Examiner's attention to new claims 72 and 73, which recite that *Q* is methyl. Support for these claims can be found in the application as filed at, for example, page 8, line 7. These four new claims are believed to be particularly in condition for allowance.

The Examiner has objected to claim 1, line 4, stating that after "the segment *Z*", "comprises" should be changed to "is selected from" for proper Markush language. The Examiner has also said that claim 1 defines *Z* as comprising "one or more of C, O, N, and S", and that this definition of *Z* is broad and confusing. While Applicants remain of the position previously stated with respect to this language, to facilitate prosecution, Applicants have amended claim 1 to define *Z* as "an atom or group of atoms, said atom or group of atoms including at least one atom selected from the group consisting of C, O, N and S". Applicants believe that this amendment, while not changing the scope of the claim, removes any possible basis for this ground for objection.

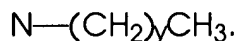
The Examiner has also objected to claim 3, stating that there is insufficient antecedent basis for the limitation "wherein the segment $Z(CH_2)_nCH_3$ is $NH(CH_2)_nCH_3$ " in claim 1. While Applicants remain of the position previously stated with respect to this language, to facilitate prosecution, Applicants have amended claim 3 to recite that *Z* is NH. Applicants believe that this amendment, while not changing the

scope of the claim, removes any possible basis for this ground for objection.

The Examiner has also objected to claim 4, stating that there is insufficient antecedent basis for the limitation "wherein the segment $Z(CH_2)_nCH_3$ is



in claim 1. While Applicants remain of the position previously stated with respect to this language, to facilitate prosecution, Applicants have amended claim 4 to recite that Z is



Applicants believe that this amendment, while not changing the scope of the claim, removes any possible basis for this ground for objection.

Applicants remain of the position set forth in the previous Amendment with respect to the use of the term "chromophore". More specifically, Applicants are of the position that this term is very well known in the art and clearly indicates to one of ordinary skill in the art the possible values for R, particularly when seen in view of the teachings of the instant specification. As evidence of Applicants' assertion that this term is very well understood by those of skill in the art, Applicants respectfully request that the Examiner take note of recently issued U.S. Patent 6,372,154; U.S. Patent 6,365,068; U.S. Patent 6,365,720; U.S. Patent 6,355,783; U.S. Patent 6,350,862; U.S. Patent 6,350,431; U.S. Patent 6,342,616; U.S. Patent 6,329,514; U.S. Patent 6,329,117; U.S. Patent 6,323,257; U.S. Patent 6,306,182; U.S. Patent 6,291,065; U.S. Patent 6,287,348; U.S. Patent 6,284,036; and U.S. Patent 6,281,339, copies of

which are enclosed herewith, as just a few examples of the very large number of U.S. Patents in which the term "chromophore" is used in the claims in a context similar to that of the present claims. Applicants further do not understand the Examiner's reasoning that "were Applicant insisting that it (the term "chromophore") is non-ambiguous, then all claims will be rejected over 102(a) RN: 215670-63-6." To the best of Applicants' Attorney to determine, no reference with this number is of record in the instant application. In addition, Applicants do not understand how the determination that the term "chromophore" is non-ambiguous could lead to rejection of the claims over any reference that is not now relevant to the instant claims. Applicants respectfully request reconsideration and withdrawal of this ground for objection.

Applicants believe that the foregoing amendments and distinctions place the claims in condition for allowance, and accordingly respectfully request reconsideration and withdrawal of all grounds for rejection.

Application No. 09/772,617

In the event the Examiner considers personal contact advantageous to the disposition of this case, she is hereby authorized to call Applicant(s) attorney, Judith L. Byorick, at Telephone Number (585) 423-4564, Rochester, New York.

Respectfully submitted,



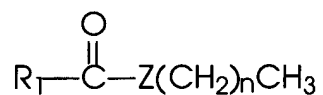
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April 30, 2002
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VERSION WITH MARKINGS TO SHOW CHANGES MADE:

IN THE CLAIMS:

1. (Twice Amended) A compound having the formula:



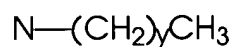
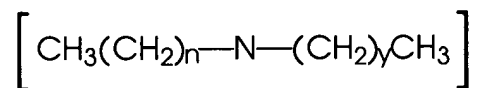
wherein R₁, Z and the carbonyl can be comprised by a common ring, wherein R₁ comprises a chromophore that absorbs light from the visible wavelength range; wherein [the segment Z comprises one or more of] Z is an atom or group of atoms, said atom or group of atoms including at least one atom selected from the group consisting of C, O, N and S; and wherein n is an integer that is at least [17] 39.

2. (Amended) The compound of claim 1 wherein n is [at least 17 and] not more than 299.

3. (Amended) The compound of claim 1 wherein [the segment Z(CH₂)_nCH₃ is NH(CH₂)_nCH₃] Z is NH.

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4. (Amended) The compound of claim 1 wherein
[the segment $Z(\text{CH}_2)_n\text{CH}_3$] \underline{Z} is



wherein y is an integer of from 0 to 300, and can be the same as or different than n .

Please cancel claims 10 to 19 and 44 to 66 without prejudice.

Claims 68 to 73 are new.